

REMARKS

Claims 1-27 have been examined and are all the claims pending in the present application.

As a preliminary matter, the Examiner notes that the remarks filed on May 22, 2007, were found to be persuasive but are moot in view of new grounds for rejection.

Applicants also thank the Examiner for indicating that claims 4, 11, 18 and 22-24 contain allowable subject matter. However, Applicant believes a broader scope of the invention is patentable in view of the art of record.

I. Claim Rejections under 35 U.S.C. § 101

Claim 15 stands rejected under 35 U.S.C. § 101 because the claimed invention is directed to non-statutory subject matter. Applicant respectfully requests the withdrawal of this rejection in view of the self-explanatory claim amendments made herein.

II. Claim Rejections under 35 U.S.C. § 102

A. Dai reference

Claims 1, 8, 15 and 25-27 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Dai et al. ("An Object-based Approach to Automated Image Matching"). Applicant traverses this rejection.

Applicant's invention relates to a comparison of similarity between images, and more particularly, to calculating the similarity value between the images, based on the similarity value between the objects. By comparing images based on characteristics of objects included in the images, similarity between images is judged. Thus, a determination as to whether an image is an illegal copy is made.

Turning to the cited art, Dai relates to image matching and bringing two images geometrically into agreement so that corresponding pixels in the two images correspond to the same physical region of the scene being imaged. In other words, image matching can be accomplished by transforming (e.g., translating, rotating, scaling) one of the images in such a way that the similarity with the other image is maximized in some sense (See Introduction). A correspondence mechanism is established to match objects in two images, and based on the matches, n regions in a reference image and m regions in the sensed image are detected and identified. Thereafter, a set of matched regions (i.e., final matches) between the reference image and the sensed image is determined and their centers of gravity are then used as the ground control points for the use in the estimation of transformation parameters (i.e., for translating, rotating, scaling) (See Experimental Results).

The Examiner contends that Dai teaches each feature of claim 1. However, claim 1 describes calculating the similarity value between images, based on the similarity value between the objects. Dai, however, merely teaches that after a set of matched regions is determined, one image is transformed to geometrically match the second image. Although two images are brought into geometrical agreement with each other, Dai does not teach calculating a similarity value between the images. Therefore, claim 1 is patentable for at least this reason.

Claims 8 and 15 include analogous, though not necessarily coextensive features recited in claim 1, and therefore, claims 8 and 15 are also patentable for the reasons discussed for claim 1.

Claims 25-27 should be patentable by virtue of their dependency.

B. Bobrow reference

Claims 1, 8, 15 and 25-27 stand rejected under 35 U.S.C. § 102(e) as being anticipated by Bobrow et al. (US Pat. No. 6,562,077). Applicant traverses this rejection.

Bobrow relates to a document search system which enables a user to dynamically specify features to be searched. In particular, Bobrow teaches sorting a set of image segments into meaningful groupings of objects which have similarities and/or recurring patterns and subsequently document images in the set of document images are ordered (i.e., sorted) and displayed in accordance with the meaningful groupings (See Abstract).

The Examiner contends that Bobrow teaches each feature of claim 1. However, claim 1 describes calculating the similarity value between images, based on the similarity value between the objects. The Examiner cites cols. 27-28 as teaching these aspects. Cols. 27-28 describe image segments are sorted into similar or dissimilar groups of image segments depending on the degree of similarity between two image segments where the measurement of similarity falls within some predefined threshold (col. 28, lines 19-28). Specifically, the image segments which remain in the set of image segments which have distance measurements within a threshold distance are used to define a new cluster of image segments (col. 29, lines 26-39). Therefore, Bobrow merely describes a distance measurement of a image segment is compared to a threshold distance, and if the distance measurement is within the threshold distance, the image segment is sorted into the grouping. That is, Bobrow merely sorts the image segments on an individual basis based upon a predetermined threshold value. Bobrow, however, does not calculate a similarity value between the images, for determining whether an image is an illegal copy. Therefore, claim 1 is patentable for at least this reason.

Claims 8 and 15 include analogous, though not necessarily coextensive features recited in claim 1, and therefore, claims 8 and 15 are also patentable for the reasons discussed for claim 1.

Claims 25-27 should be patentable by virtue of their dependency.

III. Claim Rejections under 35 U.S.C. § 103

Claims 1-3, 5-10, 12-17 and 19-21 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Li et al. (US Pat. No. 5,930,783) in view of Bobrow. Applicant traverses this rejection.

Li relates to an image search device for image databases. As part of a ranking of search results, the individual objects appearing in the images may be ranked according to how closely the object corresponds to a user's drawing or to a particular device. Thus, the similarities are made in comparison to some externally supplied reference, such as a user's drawing or other reference.

In light of the arguments of the remarks, filed May 22, 2007, the Examiner concedes that Li does not expressly call for calculating similarity between images. Therefore, the Examiner cites to Bobrow to correct this deficiency. However, as set forth above, Bobrow merely describes a distance measurement of a image segment is compared to a threshold distance, and if the distance measurement is within the threshold distance, the image segment is sorted into the grouping. That is, Bobrow merely sorts the image segments on an individual basis based upon a predetermined threshold value. Therefore, similar to Li, a similarity value between the images is never calculated. Thus, Bobrow fails to correct the deficiency of Li. Therefore, claim 1 is patentable for at least this reason.

Claims 8 and 15 include analogous, though not necessarily coextensive features recited in claim 1, and therefore, claims 8 and 15 are also patentable for the reasons discussed for claim 1.

The remaining claims should be patentable by virtue of their dependency.

IV. Conclusion

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

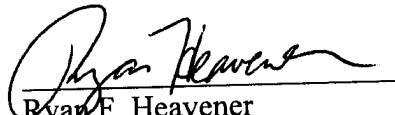
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